

Board of County Commissioners

Workshop

Date of Meeting: March 27, 2007

Date Submitted: March 22, 2007

To: Honorable Chairman and Members of the Board

From: Parwez Alam, County Administrator
Vincent S. Long, Deputy County Administrator
Tom Quillin, Chief, Emergency Medical Services Division

Subject: Workshop to Present a Report and Seek Board Guidance on Emergency Medical Services.

Statement of Issue:

To conduct a workshop with the Board of County Commissioners in order to keep the Board informed on critical trends and issues and to seek guidance on recommendations presented in this report and identified as E.M.S. Continuous Improvement Recommendations.

Background:

On June 24, 2003, the Board voted unanimously to create a County-run Emergency Medical Services (E.M.S.) Division to provide emergency medical and transport services to the citizens of Leon County. E.M.S. was previously provided by Tallahassee Memorial Hospital (TMH).

The Leon County Emergency Medical Services (L.C.E.M.S.) Division began operation at 12:00 noon on December 31, 2003, answering its first request for services shortly thereafter. In calendar year 2004 the E.M.S. Division responded to 26,481 requests for service. That number increased by 763 requests to 27,244 in 2005 and by 1,475 to 28,719 in 2006.

Analysis:

Operations

Planned resource management, a form of system status management, is utilized to deploy ambulances throughout Leon County. The current system is a mix of static and dynamic deployment models. Static deployment includes fixed base locations where ambulances are routinely stationed twenty-four hours a day regardless of historic call data. With dynamic deployment, historical data is reviewed to reveal the times of day and days of the week of high call concentration and location. Ambulances are then posted or stationed at an easily

accessible street corner for quick response. The number and location of ambulances available is based on the historical call data.

The number of ambulances on duty increases during historically high demand and decreases as the demand decreases. Demand analysis reports are used to identify the demand by day of week and time of day. These numbers are then used to assure that adequate numbers of ambulances are staffed to meet the demand.

The static deployment model is utilized for the ambulances stationed in rural areas of Chaires, Fort Braden and Woodville to provide geographic coverage and not demand driven coverage. The fire stations located in these areas serve as the primary base of operation for the ambulances assigned to these areas. The units are staffed daily and are on duty twenty-four hours a day / seven days a week regardless of historic call demand. When demand is high in other areas of the County, these units are repositioned in an effort to provide optimal coverage for the entire County.

Deploying ambulances based on geographic coverage, regardless of call demand, is a more costly approach to providing services. Units in these areas respond to less calls and transport less patients than units deployed on a dynamic call demand basis. A review of county-wide call activity for the ninety-two day period between October 1, 2006 and December 31, 2006, found that L.C.E.M.S. responded to 7,396 requests for service. The unit based in Chaires responded to 351 requests, the unit based in Woodville responded to 308 requests and the unit based in Fort Braden responded to 186 requests.

Of the 351 calls responded to by the Chaires ambulance, 179 were outside of their primary response zone, leaving 172 requests for service in the Chaires area during this time frame. The unit transported a total of 239 patients. This equates to an average of 1.87 requests for service and 1.24 patient transports per twenty-four hour period within the Chaires area. The Woodville based ambulance responded to 172 requests for service outside of their primary response zone and 136 requests for service within their primary response zone. This equates to an average of 1.48 requests for service and 1.11 patient transports per twenty-four hour period in the Woodville area. Sixty of the 186 calls responded to by the Fort Braden ambulance was outside of their primary response zone, leaving 126 calls in the Fort Braden area. This equates to an average of 1.37 requests for service and 0.98 patients transported per twenty-four hour period in the Fort Braden area.

In contrast, units deployed utilizing a demand based dynamic method responded to 1,170 requests for service and transported 864 patients, resulting in an average of 12.7 requests for service and 9.4 transports per twenty-four hour period.

The estimated personnel cost to operate one ambulance in the rural areas of the County for this time frame was \$88,750.00 or \$616 per request for service and \$870 per patient transport. The estimated personnel cost to operate one ambulance under the demand based dynamic method for this time frame is \$116,086.00 or \$198 per request for service and \$269 per patient transport. The overall personnel costs are higher in the dynamic deployment model

since the personnel on these shifts cannot work twenty-four shifts due to the high call demand. The personnel working on the geographically deployed ambulances work twenty-four shifts, which requires less total employees. It is important to note that these estimated costs include only personnel costs and do not take into consideration other operating costs that are assumed to be consistent across both types of deployment.

During a typical day, the units stationed in Chaires, Woodville and Fort Braden are moved to areas of the County that provide a better response for the entire County. The Chaires ambulance is repositioned approximately 1% of the time, is on calls 16% of the time and is available in Chaires the other 83% of the time. The Woodville ambulance is repositioned approximately 1% of the time, is on calls 13% of the time and is available in Woodville the other 86% of the time. The Fort Braden ambulance is repositioned approximately 4% of the time, is on calls 8% of the time and is available in Fort Braden the other 88% of the time.

In the urban areas of the County a dynamic deployment model is used. This model is more cost effective and matches resources to historic demand. Post locations, or locations where ambulances are positioned, is determined by historic call locations and roadway accessibility. The following are the current post locations:

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|------------------------------------|---------------------------------------|
| 1. Capital Regional Medical Center | 10. Blairstone & Capital Circle SE |
| 2. Leon County Sheriff's Office | 11. NW Capital Circle & I-10 |
| 3. Gaile Ave & Woodville Hgw | 12. Chaires – TFD Station 12 |
| 4. Shamrock & Killearny Way | 13. Woodville – TFD Station 13 |
| 5. North Monroe & Interstate 10 | 14. Fort Braden – TFD Station 14 |
| 6. Apalachee Parkway & Blairstone | 15. Tallahassee Regional Airport |
| 7. Copeland & Tennessee | 16. Growth Management – Tharpe Street |
| 8. Thomasville Road & Timberlane | 17. Southside Clinic – Orange Ave. |
| 9. Thomasville Road & Kerry Forest | |

Post locations are prioritized based on call volume and the number of available ambulances. For example, if there are four units available the post locations with the four highest historic demands are filled first. In an effort to limit the amount of idle running time of ambulances and to improve employee comfort, when possible, ambulance posts have been located at county owned facilities.

At the January 13, 2004 meeting, the Board approved an agreement with the City of Tallahassee to provide Advanced Life Support (ALS) through TFD. Under the agreement, the County provides the ALS equipment, training, medical direction and \$2,419,784 in funding for the city to provide ALS at five stations. The agreement expires on June 31, 2009. These first response ALS units were placed in fire stations closest to areas of historically high medical call volume and were put into operation in April of 2004. This effort continues with the goal of improving ALS response times county wide.

E.M.S. Continuous Improvement Recommendation: The E.M.S. Division will continue to monitor demand analysis, call locations and the scheduling of resources to assure that resources are matched with demand.

Dispatch

Leon County E.M.S. dispatch is located at the Leon County Sheriff's Office. The Sheriff's Office provides the space and personnel necessary to dispatch ambulances. In FY 06/07 the County provided \$462,532 in funding to the Sheriff's Office for this service through the E.M.S. budget.

The E.M.S. Division has a system controller at the Sheriff's Office dispatch center. The system controller is an E.M.S. Division Paramedic or Emergency Medical Technician that is nationally certified in Emergency Medical Dispatch (EMD) who is responsible for the positioning of ambulances at post locations, assigning the requests for service to the closest available ambulance, scheduling non-emergency transports, coordinating the E.M.S. response with other agencies and assisting with call taking.

The Sheriff's Office has trained and nationally certified EMD personnel who answer incoming 9-1-1 calls including 9-1-1 calls transferred from the Tallahassee Police Department. Known as call takers, these staff members gather the necessary information to dispatch an ambulance to the incident location. In addition, they utilize a computer based system called Pro-QA that guides them through a series of questions to determine the response priority level. Based on the information gathered, this system also provides pre-arrival instructions that allow the call taker to walk the caller through basic first aid and CPR type treatment that will assist the patient until emergency service workers arrive on scene. Both the response priority level and pre-arrival instructions are nationally accepted and recognized standards in E.M.S. The program utilized, Pro-QA, is an internationally accepted standard for emergency medical dispatch and is endorsed by the National Academy of Emergency Dispatch.

There are three levels of response priority determined by the Pro-QA system:

- Code 3 – life-threatening calls – The ambulance responds lights & sirens. TFD dispatch is sent an incident screen by L.C.E.M.S.
- Code 2 – non-life-threatening / urgent calls – The ambulance responds without lights & sirens, following all traffic regulations. TFD dispatch is not sent an incident screen by L.C.E.M.S.
- Code 1 – non – emergency calls. – The ambulance responds without lights & sirens, following all traffic regulations. The call may be held until the system is not busy. An example of a code 1 call is a transport from one medical facility to another; such as a local hospital to a nursing home.

As the call information is entered into the E.M.S. Computer Aided Dispatch system the available information goes to the Leon County E.M.S. system controller. The system

controller then assigns the request for service to the closest available ambulance and when indicated they also notify the Tallahassee Fire Department of the incident.

In an effort to improve system utilization the E.M.S. Division has implemented an Automatic Vehicle Location (AVL) system. This system allows the E.M.S. system controller to see the location and status of all ambulances on a map contained within the CAD system. The CAD system uses this information to recommend the closest available unit, based on the location of the incident and the location of available ambulances.

The system controller will then verify the CAD recommendation and assign the call to the closest available ambulance. The ambulance crew will receive all call information on their mobile data terminal (MDT) inside the cab of the ambulance, including a map showing their location and the location of the incident site. The system also allows the crew to interact with the CAD through the MDT. This will improve the accuracy of the times associated with the call by improving the input into the CAD system. Further, it reduces the amount of radio traffic.

On March 22, 2005, the Board held a workshop with the Leon County Sheriff to consider the findings of RCC Consultants, Inc. report on the creation of a joint dispatch and emergency operations center for Leon County. RCC Consultants, Inc. recommended the creation of a consolidated, joint dispatch center that includes Leon County Sheriff's Office, Tallahassee Fire Department, Tallahassee Police Department and Leon County E.M.S.. They further recommended that the joint dispatch center have a single management body and to combine the Emergency Operations Center (EOC) into a common building with the joint dispatch center.

After a period of discussion by the Board and Sheriff Larry Campbell, dispatch and emergency operations staff, the Board unanimously approved a motion with the following key parts:

- Accept the findings of the workshop item and RCC Consultants, Inc. report and
- Inform the City Commission of the County Commission's intention to move forward toward creation of a joint dispatch and emergency operations center

At the May 10, 2005 Board meeting the County Commission authorized Commissioner DePuy to work with City Commissioner Lightsey on the joint dispatch issue. On December 13, 2005 the Board authorized the hiring of Public Technology Institute (PTI) in partnership with the city to review the issue of a joint dispatch for fire and E.M.S.

At the April 25, 2006 Board meeting the PTI presented their report on the consolidation of fire and emergency medical services dispatch.

Dr. Costis Toregas provided a slide presentation outlining the recommendations of PTI.

- Summary Comments:

- PTI received excellent cooperation from all parties.
 - PTI found no “crisis” but found some deficiencies.
 - PTI looked only at a joint dispatch for fire and emergency medical services.
- Executive Summary:
 - develop Level of Service (LOS) indicators;
 - create a Total Cost of Ownership analysis; and,
 - integrate cost and performance data.
- Recommendations:
 - establish and develop a performance analysis of the dispatch function;
 - organize information and improve communication with all citizens;
 - deploy an intergovernmental, independent dispatch facility (no ownership);
 - investigate long term tie-ins to Homeland Security for funding source;
 - look into establishing an Emergency Operations Center;
 - build trust with City through other collaborative efforts.

At that meeting, the Sheriff supported PTI’s recommendations, but suggested that law enforcement should be included in this effort.

The concept which was approved by the Board was to create a joint dispatch center that includes Tallahassee Police Department, Tallahassee Fire Department, Leon County Sheriff’s Office and Leon County E.M.S. Consistent with PTI’s recommendations, this effort calls for the joint dispatch center to be operated by a Director of Public Safety Communications who reports to a Public Safety Communications Board (PSCB) that represents both the City and County governments. The PSCB members include the County Administrator, City Manager, County Sheriff, E.M.S. Chief, City Fire Chief and the City Police Chief. The City Commission approved the plan at their April 26, 2006 meeting.

At the May 9, 2006 meeting the Board re-affirmed their position on joint dispatch and instructed the PSCB to convene and begin the process of developing a joint dispatch center. The PSCB’s first meeting was held June 27, 2006 and they have met ten times and continue to meet at least once a month. To date, the PSCB has: completed a needs assessment of the current 800 MHz radio system, developed and issued a request for proposal for a new radio system, hired a consultant to assist with the transition to a joint dispatch center, identifying a site for the new dispatch center, and developed job specifications for the Director of Public Safety Communications position.

The E.M.S. Division fully supports the joint dispatch project and the migration of the two public safety answering points into one location. Upon completion, a joint dispatch center will result in a streamlined call-taking and dispatching process, thereby decreasing the overall response time of emergency assistance. Further, a common computer aided dispatch system will improve the accuracy of reports used to enhance the E.M.S. system.

E.M.S. Continuous Improvement Recommendation: Support the efforts to implement Board direction to create a consolidated emergency services and law enforcement dispatch center.

Response

There are 70 full-time, 11 part-time and 24 as needed Emergency Medical Technicians (EMT) and Paramedics employed at the E.M.S. Division to staff the eighteen permitted ALS ambulances. All deployed ambulances are staffed with a minimum of one EMT and one Paramedic.

The Division is in the final stages of implementing TeleStaff, an automated scheduling system that will improve the efficiency of scheduling personnel. This system assures compliance with fatigue and overtime rules when scheduling personnel to fill vacancies created through annual and sick time usage. It can also be used in the event of a major incident to notify off duty field personnel to report for duty.

Emergency Medical Technicians are basic level providers who assist Paramedics with patient care. They are trained in basic first aid, CPR, Automated External Defibrillation, spinal and fracture immobilization and emergency child birth. In addition to the basic level EMT training, Paramedics are trained in advanced airway control, medication administration, intravenous therapy, cardiac monitoring and defibrillation.

How quickly Paramedics arrive on the scene of a life-threatening emergency, may directly impact patient outcome. Response time goals and results are considered using a system approach, including Tallahassee Fire Department paramedic response times. System response time goals for life threatening emergencies are to have a paramedic at the patient's side in 8:59 in urban areas, 12:59 in suburban areas and 17:59 in rural areas 90% of the time. There is currently not an automated system in place to measure system fractile response times. With the creation of joint dispatch and an integrated computer aided dispatch system, these measurements would be automated. The E.M.S. Division fractile response time performance is currently 91% in urban areas, 84% in suburban areas and 88% in rural areas.

There are many factors that can impact response times. They include weather, the time of day and day of the week, the number of units on duty, the number of units available, posting locations, post priorities and dispatch slow downs. Just a few seconds of delay in each of these areas can result in minutes of delay in overall response time. The following is continually reviewed to evaluate response times and make improvements when necessary:

- A comprehensive review of the number of units on duty is continually preformed. In April 2005 an additional unit was placed in service twenty-four hours a day, seven days a week. In the FY05/06 budget the Board approved an additional 8,760 hours of unit coverage and an additional 4,368 hours was approved in the FY06/07 budget. These unit hours were used to boost coverage during historically busy times.
- Posting locations and priorities are reviewed against call location information. This assures that units are posted in the areas of the highest call volume, while taking into consideration the Tallahassee Fire Department ALS unit locations.

- The amount of time it takes to process a call in the dispatch center is reviewed, looking for ways to improve call input. The Sheriff's Office reviews compliance with EMD protocols and call input times. A comprehensive quality review process is currently in place.
- Chute times or the time it takes from being assigned a call until the vehicle is enroute or responding to the call are reviewed. The shorter the chute time, the better the response time. Average out of chute times are 32 seconds for system status units and 1 minute 04 seconds for the units located in the county stations.
- Drop times or the amount of time it takes an ambulance to transfer patient care to the receiving hospital is monitored. This time is calculated from the time the unit arrives at the hospital until it is available and ready for service. If a unit had an average drop time of 30 minutes and transported 4 patients; their ineffective unit hours is 2. In other words the drop time means the unit is not available for service for two hours of its scheduled shift. The average drop time for LCE.M.S. ambulances is 26 minutes per transport.

E.M.S. Continuous Improvement Recommendation: The E.M.S. Division will continue to analyze response times and make adjustments to coverage, posting and procedures as necessary to further improve patient outcomes.

Transports

While response times are important, how quickly you can move the patient to the hospital has a major impact on morbidity and mortality in the event of heart attack, stroke or trauma. In these instances time is of the essence, since immediate interventions only available at the hospital are often required. The average time it takes to get a patient to the hospital is 27 minutes. This time is calculated from the receipt of the 9-1-1 call at the Sheriff's Office until the patient arrives at the hospital. On scene times are monitored during the quality management process in an effort to decrease the overall out of hospital time for the patient.

In 2004 there were 26,481 requests for service. That number increased by 2.9% to 27,244 requests for service in 2005. Of those responses, 62.7% in 2004 and 64.5% in 2005, resulted in a patient being transported. That equates to 16,609 patient transports during calendar year 2004 and 17,574 in 2005; over a 5.8% increase in patient transports. This trend in increased call volume and patient transports continued in 2006. Requests for services increased 5.4% to 28,719 in 2006 and transports rose to 19,194.

E.M.S. Continuous Improvement Recommendation: Continue to monitor system performance and make improvements within available resources and make recommendations for adding additional resources as deemed appropriate through the budget process.

E.M.S. Fleet

The E.M.S. Division operates eighteen Advanced Life Support ambulances; one special operations vehicle and trailer; four support vehicles; and two mobile emergency response vehicles (golf cart mini-ambulances) with trailers. All eighteen advanced life support ambulances are permitted by the Department of Health as meeting the minimum standards for equipment and supplies. Each is fully equipped with all the necessary equipment and ready for deployment.

The special operations vehicle and trailer were received at no cost as part of the Domestic Security Preparedness initiative of the Department of Health. The vehicle and trailer are equipped with supplies that are necessary to respond to a major emergency. Its inventory includes everything from medical supplies to treat multiple casualties to generators, shelters and other miscellaneous equipment to support a longer term operation. The special operations team and unit have been deployed to hurricane relief efforts in both Mississippi and Florida.

The Mobile Emergency Response Vehicles (MERV) were also received at no cost to the County through a North Florida Regional Domestic Security Task Force Grant. These mini-ambulances are designed to access and transport patients from areas where a traditional ambulance would not go. They are utilized at numerous types of special events including college football games, parades and festivals. The MERV units are also available for use at major incident scenes, to help move patients away from the event to the treatment and transport areas. As a part of the grant the Division also received two trailers to move the MERV units with. The trailers are equipped with medical supplies, a generator, lights and air conditioning so they can be used as a first aid station when necessary.

At the February 13, 2007 meeting, the Board approved an ambulance replacement and remounting program. This program will replace all current ambulances with a medium duty ambulance by FY11. In subsequent years, the ambulance box or module will be placed onto a new chassis saving 40% to 60% per vehicle. Staff has calculated a significant long term cost savings by implementing this program.

E.M.S. Continuous Improvement Recommendation: Maintain an updated fleet of vehicles and continue to research alternatives to improve efficiency, safety and reliability. Pursue additional grants to improve readiness and response capabilities.

Logistics

E.M.S. logistics support services assures that the materials needed to operate the E.M.S. Division are procured and ready for use. Logistics is an important part of the E.M.S. team and is responsible for:

1. The coordination of vehicle and equipment preventative maintenance and cleaning.
2. Assuring that all vehicles are stocked and equipped in accordance with Division policies.
3. Coordinates the acquisition and inventory of E.M.S. supplies.

Currently, one of the Division's two logistics personnel is on duty twelve-hours per day, seven days per week. As the system continues to grow, there will be a need to expand staffing to assure proper readiness of the Division.

Administration

The Administration branch of the E.M.S. Division is responsible for supporting the operation of the organization and assuring compliance with applicable federal, state and local laws, rules and regulations. The major functions of the Administration branch are:

- Public education and information
- Special event medical coverage coordination
- Staff education
- Medical direction
- Quality management
- Financial management
- Billing and collections coordination
- Division safety program
- Administrative oversight of the Volunteer Fire Departments
- Provides staff to the Emergency Medical Services Advisory Council

Public Education and Community Partnerships

Public education and information is an integral part of the E.M.S. Division's mission of improving health and promoting safety. Division Paramedics and Emergency Medical Technicians provided 96 public education presentations to various groups in Leon County in 2006. From cardio-pulmonary resuscitation (CPR) and automated external defibrillation (AED) training programs to general programs about when to use E.M.S. were presented to various groups of all ages. Division staff trained over 350 citizens in CPR and AED use last year.

The most popular program, by far, is Leon Lifesaver. Leon is a remote control ambulance that is used to present injury prevention programs to children in lower grades of elementary school. Leon's messages include when and how to call for help by using 9-1-1, seatbelt and car seat usage, fire arms safety, bicycle and pedestrian safety, and stranger safety. This program has been well received and presented thirty-four times in 2006.

The E.M.S. Division has also partnered with other local agencies in an effort to prevent injuries and illness through education and preparedness.

- Leon County / Tallahassee Heart Ready Coalition – Leon County E.M.S. has been pivotal in the development of the Leon County / Tallahassee Heart Ready Coalition. The coalition exists to improve the readiness of the community to respond to cardiac emergencies. It is a community partnership between public and private organizations and healthcare providers that advocates and facilitates CPR and AED training, AED availability and improved survivability of cardiac emergencies. Through the efforts of the coalition, Leon County has been designated as a Heart Ready Community by the American Heart Association. Communities with this designation have a higher survivability rate of cardiac emergencies.

As part of this program the E.M.S. Division has documented 126 AEDs in the community. The location of these AEDs has been placed in the E.M.S. Computer Aided Dispatch program. When someone calls for help from a location that has an AED a message is displayed to the dispatcher so that they can instruct the caller to retrieve and use the AED when necessary.

On March 28, 2006 the division was granted Board approval to apply for a state E.M.S. matching grant in the amount of \$475,200 for the purchase of AEDs for 396 law enforcement vehicles. The goal of the grant is to equip all Leon County Sheriff and Tallahassee Police Department patrol vehicles with an AED. Other communities that have used a similar approach have improved cardiac arrest survival by 30%.

The county was awarded a reduced grant of \$122,501 with \$91,876 coming from the Department of Health and the \$30,625 match coming from the American Heart Association, which the Board accepted on September 12, 2006. The County was able to purchase 116 AEDs for distribution. At the December 12, 2006 meeting, the Board approved the transfer of the AEDs to the Sheriff's Office. The AEDs have since been delivered to the Sheriff's Office, who is in the process of deploying the devices to their patrol units.

In 2005, Leon County had an out-of-hospital cardiac arrest resuscitation rate of 21.21%. In 2006, there were 167 out-of-hospital cardiac arrests and 38 had a spontaneous return of circulation for a resuscitation rate of 22.75%. The E.M.S. Division believes that this number will continue to increase with the continuation of CPR training of citizens, placement of AEDs and other improvements in care provided by EMTs and Paramedics.

- SAFE Kids Coalition – Each year, 250,000 children under the age of 14 are treated in Florida emergency rooms. The SAFE Kids Coalition is a national effort to reduce the risk of preventable accidental injuries to these children. Leon County through the E.M.S. Division played a major role in the development of the local SAFE Kids Coalition. The coalition relies on community support and the partnering of various organizations in the community to provide education programs on injury prevention. In cooperation with the local SAFE Kids Coalition, the E.M.S. Division was able to distribute approximately 500 bicycle helmets to area youth at no charge. In order to

qualify for the free helmet the child was required to complete a short bicycle safety program.

- North Florida / South Georgia Regional E.M.S. Coordination – The E.M.S. Division established and is coordinating quarterly meetings of neighboring E.M.S. providers and hospitals in the region, including South Georgia. This group has been meeting to discuss and deal with issues common to E.M.S. in North Florida and South Georgia, including emergency preparedness, emergency department utilization and training.

At the February 13, 2007 meeting, the Board approved submitting Department of Health, Emergency Medical Services matching grant application totaling \$98,300 for a public education and injury prevention program. If approved and accepted by the Board, this grant would fund a Public Education and Injury Prevention Specialist position within the EMS Division and provide money for the development and delivery of injury prevention programs such as fall prevention, pool safety, motor vehicle crash avoidance, CPR and AED use, bicycle safety, seat belt use, child safety and bystander care programs. The grant would provide \$73,725 of the program and the County would match \$24,575.

E.M.S. Continuous Improvement Recommendation: Develop and implement a community education bystander care program. This program will instruct bystanders of the steps they can take to assist accident victims prior to the arrival of emergency responders.

Special Event Medical Coverage Coordination

The E.M.S. Division provides two types of medical coverage at special events, dedicated and non-dedicated. Medical coverage was provided at 172 events in 2005 and 154 events in 2006.

Dedicated standbys are required for larger events, events where there is limited access to the venue and at events where the ambulance or medical crew is required to stay on site. To cover these events extra ambulances are staffed and deployed to exclusively provide medical coverage at the event. Event sponsors pay for this medical coverage to cover the costs incurred by the County. Of the 154 standbys in 2006, 97 required dedicated medical coverage. The coverage varies at each event and is dependant on the size, location and number of expected participants.

Non-dedicated standbys are provided at no charge and are used at smaller events that do not require the ambulance or medical crew to remain on site for the duration of the event. These events are covered using an ambulance already on duty. No guarantee of coverage is provided to the event sponsor and is dependent on ambulances being available. Since no additional ambulances are placed on duty there is a limitation to the geographic area of the event and the number of events that can be done at one time.

E.M.S. Continuous Improvement Recommendation: Continue the current practice of providing standbys.

Staff Education

New employees are required to successfully complete an E.M.S. Division orientation program where they are trained in the basics of medical treatment protocols, Division standard operating guidelines, complete their initial HIPAA training, are familiarized with the GIS mapping program and the electronic patient care record and data collection program.

At the end of the orientation new employees are paired with Field Training Officers (FTO) who are experienced, well trained, field providers. The new employees then complete a field internship program with the FTO, who provides them with on the job training while at the same time evaluates their abilities to function as a field provider. During this entire process the FTO provides feedback to the new employee as well as to the Education / IQM Manager. This assures that new employees are capable of meeting the high standards established by the E.M.S. Division and E.M.S. Medical Director.

Last year over 200 hours of continuing education was available for E.M.S. staff. In addition to programs that improve medical care, E.M.S. personnel are trained in hazardous materials response, emergency vehicle driving, terrorism, National Incident Management System, incident command system and mass casualty responses. Local subject matter experts have been used to present the training and education sessions. The topics of continuing education courses are derived from the quality improvement process.

The Division also offers an alternative delivery method in the Medic Monthly training program available to all field staff. Medic Monthly is a web based training program, specifically designed for E.M.S. field workers, that provides continuing education. The program offers an additional 16 hours of continuing education per year utilizing a non-traditional, technology based, solution.

Medical Direction and Standards

All Leon County E.M.S. and Tallahassee Fire Department Emergency Medical Technicians and Paramedics operate under the direction of Leon County E.M.S. Medical Director Dr. Kim Landry. Dr. Landry oversees the medical care provided in the field by writing standing medical orders and protocols, outlining the medical treatment provided to each type of patient.

Dr. Landry specializes in emergency medicine and emergency medical services. He is board certified in emergency medicine and is a member of the College of Emergency Physicians and the Florida Emergency Medical Services Medical Directors Association.

The E.M.S. Division utilizes progressive medical treatment protocols and procedures that are on the leading edge of pre-hospital medical care. This is particularly true in the treatment of cardiac problems, stroke, difficulty breathing and serious trauma.

Paramedics perform 12 lead EKGs on cardiac patients in the field, helping to detect serious heart problems long before arrival at the emergency department. Once the EKG is captured, Paramedics can transmit the EKG to the emergency department physician over the mobile phone. This allows emergency department nurses and physicians to prepare for the patient and provide invasive life saving care immediately upon arrival to the emergency department; greatly improving the patient's outcome. The division has assisted both hospitals in obtaining their Chest Pain Center certifications. In an effort to further enhance the treatment of cardiac patients, E.M.S. staff continues to meet with hospital representatives on a monthly basis.

The E.M.S. Division has met all state requirements for the emergency treatment and transportation of stroke patients by developing and implementing aggressive treatment and transport protocols. These protocols improve a patient's chance of arriving at a recognized stroke center within the window of opportunity for treatment of this debilitating condition, greatly improving their long term outcome. The division has worked with neurologists to assure consistency between pre-hospital and hospital medical treatment and to form protocols to expedite the treatment of stroke patients. This cooperative effort assisted TMH in becoming a certified Stroke Center.

Continuous Positive Airway Pressure or CPAP treatment was added to all Leon County E.M.S. ambulances and TFD Advanced Life Support units last year. CPAP is a proven treatment for patients experiencing difficulty breathing and respiratory distress. Early use of CPAP has been shown to significantly reduce hospital stays and the need for seriously ill patients to be placed on ventilators.

Trauma treatment and transport protocols prescribe current standard treatment necessary to improve the chance of survival of trauma patients. The trauma treatment and transport protocols were revised and approved by the Department of Health, Office of Trauma last year. In an effort to further enhance trauma patient care, the division has been working with TMH during their planning phases of their trauma center.

This year, new venous access equipment was added to all ALS units. This equipment includes the addition of state-of-the-art equipment that allows paramedics to drill a needle into the bone of a patient to gain access for the delivery of life-saving medication and IV fluids. Venoscopes were also added to the paramedics' venous access equipment. A Venoscope is a device that illuminates the veins of the patient; thus making starting an IV easier.

E.M.S. Continuous Improvement Recommendation: Continue to monitor changes in the pre hospital standard of care and adopt these changes when appropriate.

Quality Management

Quality management is a process that assures compliance with medical protocols and nationally accepted standards of care. It is used to identify individual and division effectiveness and deficiencies.

Patient care records are reviewed first by another Paramedic or Field Training Officer. After that review is completed, they will make comments on the quality management form. Once complete the patient care records are then reviewed by Dr. Landry, who also provides comments on the care provided. After both reviews are complete the records are forwarded to the crew whom provided the care for their review and comments back to the medical director.

These reviews help to determine training needs of both individual field providers as well as the organization as a whole. This process also provides valuable information on necessary protocol changes and updates.

Employee focus groups and suggestions are used as an avenue for employees to provide input on the improvement of the E.M.S. Division. At the meetings employees and management discuss possible improvements to the services provided. Many of the improvements made to the Division have been a result of employee input.

All customer complaints are routed through the quality management process. Complete assessments of the services provided are reviewed by the Quality Improvement & Education Manager, the service Medical Director, and E.M.S. Chief.

Records Management

An electronic patient care reporting system is currently in use by the E.M.S. Division. Most records are maintained in an electronic format. All records are maintained in a secure environment and in accordance with all privacy regulations including HIPAA.

In 2005, the Division processed 417 requests for medical records. That number rose to 462 in 2006, an average of 38.5 records per month. These requests for copies of medical records come primarily from attorneys offices.

Billing and Collections

Patient care records prepared in the field are essential to the billing success of the Division. The quality of the information and data collected directly impacts the end results and the amount collected.

Each and every patient care record is reviewed by the E.M.S. Billing Coordinator for completeness, clarity and medical necessity. Once the record is determined to be complete it is electronically sent to the County's billing vendor, Advanced Data Processing, Inc. (ADPI). ADPI was selected through the RFP process at the September 23, 2003 Board meeting and again at the November 21, 2006 Board meeting.

ADPI is then responsible for reviewing the patient care record and assigning it a proper billing code, submitting the claim to the proper payer and assuring that payment is received and posted. ADPI is also responsible for customer service related to billing, establishing payment plans and assuring account activity remains current.

In calendar year 2004 Medicare billings were 31.3% of all bills, insurance was 30.4%, self pay was 24.6% and Medicaid was 13.7%. These percentages represent the number of bills in each of the four categories for transports occurring in 2004. A majority of all patients transported were Medicare patients, followed closely by patients who had private insurance; then self pay and Medicaid. This results in 75.4% of all patients transported having some form of insurance. The following percentages represent the source of payments on these same billings: insurance 60.6%, Medicare 31.3%, Medicaid 6.7% and self pay 1.4%.

The 2005 numbers are very similar to the 2004 numbers. This indicates minimal change in the demographics of the patients transported, even though the number of transports has increased. Medicare represented 31.6% of all billings, insurance 28.8%, self pay 26.7% and Medicaid 12.9%. There was an overall 2.1% decrease in the number of patients who have some form of insurance coverage to 73.3%, with a decrease of 0.8% of Medicaid patients, 1.6% decrease of insurance patients and a 0.8% decrease in Medicaid patients. Payment changes during 2005 also changed slightly with the following percentages representing the source of payments: insurance 57.63%, Medicare 33.64%, Medicaid 7.06% and self pay 1.66%.

In 2006, Medicare represented 35.0%, insurance 26.1%, self pay 25.1% and Medicaid 13.8% of all billings. The overall number of patients transported who have some form of insurance coverage rose to 74.9%, with a 3.44% increase in Medicare and a 0.84% increase in Medicaid patients. The number of self pay patients dropped by 1.61% and the number of patients with commercial insurance dropped 2.67%. Commercial insurance represented 48.1% of all collections while Medicare was 43.3%, Medicaid was 7.3% and self pay was 1.3% of all collections.

Since approximately half of the E.M.S. Division's budget is derived from fees for services and the other half from the E.M.S. Municipal Services Taxing Unit (MSTU), it is imperative that Leon County make every effort to collect all outstanding debts. While ADPI continues to work delinquent accounts for one year, it is not the primary focus of their service.

The Board approved a Collection of Delinquent EMS accounts policy at the February 13, 2007 meeting. A bid for a vendor to provide collection of delinquent account services was released by the Purchasing Division on February 21, 2007 with responses due on March 21, 2007. Staff will continue work to secure a qualified vendor in accordance with the procurement policies.

A collections agency whose primary mission is collecting delinquent accounts can usually recover four to six percent of outstanding balances, potentially resulting in an increased collection of approximately \$200,000 per year.

The current billing rates were established by unanimous approval of a resolution at the December 9, 2003 Board meeting. The rates that were adopted were the then current rates of

Tallahassee Memorial Healthcare. These rates were also utilized by Fitch & Associates Consulting Firm when contemplating revenue for the creation of a County operated E.M.S.

A common complaint from citizens is when their health insurance will not pay 100% of the amount billed. This is a common problem for individuals who have Blue Cross / Blue Shield PPO health insurance coverage. Staff recommends that the Board consider adopting a membership program. Membership programs are commonplace in E.M.S. organizations nationwide and they provide an alternative for individuals who do not have insurance or whose insurance coverage will not pay 100% of the ambulance transport charges.

In a membership program, an open enrollment period is established where citizens can purchase a membership at an annual fee most commonly around \$85 per household. In return, the member is not balanced billed; the County would accept whatever, if any, payment received from the insurance company as payment in full. The key to a successful membership program is having more members who do not use the service than who use the service. If conceptually approved, staff will bring an item to the Board to formally establish the membership program.

E.M.S. Continuous Improvement Recommendations:

Develop a membership program. If conceptually approved, staff will bring an item to the Board to formally establish the membership program.

Municipal Services Taxing Unit

An Emergency Medical Services Municipal Services Taxing Unit (MSTU) was approved by the Board at their September 16, 2003 meeting. The MSTU funds \$6,945,974 of the total EMS operating budget of \$11,353,687. Under the ALS agreement with the City, \$2,419,784 of the MSTU is paid to the City of Tallahassee for the five Advanced Life Support fire department units.

Currently, the E.M.S. Division collects an average of \$308 per patient transport while the average bill is \$798. This average collection is below the fully loaded average cost per transport of \$569.

During the treatment of a cardiac arrest patient \$255 of expendable supplies may be used. This does not include the cost of personnel, dispatch, the ambulance and non-expendable equipment. As demonstrated, the average cost of providing service is much higher than the average amount collected.

Inter-facility Transports

Currently, the E.M.S. Division has been accommodating more requests for inter-facility transports by activating off duty personnel to staff the ambulance. Adding staff to perform inter-facility transports, on a more consistent basis, is a new business opportunity for the

division. Inter-facility transports are usually paid for upfront and have guaranteed payment, making this a revenue generating opportunity. These patients are usually being transported to larger medical facilities for treatment of medical conditions not available in Leon County.

This is a service that is needed by the citizens as well as the medical facilities. An analysis of the transports completed by the E.M.S. Division between February 2006 and January 2007 indicates that 122 transports were completed bringing in an additional \$128,700 of revenue. The collection rate on transports completed between February and July 2006 is 91.2%.

Overview of Division Accomplishments

- Successfully obtained Department of Health licensure renewal
- Established Heart Ready Community status for Leon County from the American Heart Association.
- Received recognition as a “2006 Crown Community” from *American City and County Magazine* for the AED program.
- Safely transported 51,946 patients from 2004 - 2006.
- Fully integrated E.M.S. Division employees into the County Human Resources Policy and Procedure manual.
- Established a part-time class employee.
- Added 8,760 hours of unit coverage in 2005 and 4,368 in 2006.
- Assisted in the development and growth of the Leon County / Tallahassee SAFE Kids Coalition and distributed 500 free bicycle safety helmets.
- Established a county wide public access Automated External Defibrillator program and placed AEDs in County facilities.
- Instrumental in the development of the Leon County / Tallahassee Heart Ready Coalition.
- Established North Florida / South Georgia Regional E.M.S. coordination meetings.
- Developed and implemented Standard Operating Guidelines and System Controller Guidelines.
- Improved emergency preparedness through additional training and equipment.
- Participated in the North Florida Regional Domestic Security Task Force.
- Participated in local and regional emergency preparedness planning and exercises.
- Awarded \$624,216 in grant money and equipment
- Increased training available to the staff.
- Improved Medical treatment capabilities with the addition of CPAP, venous access devices, advanced airway training and updated medical treatment protocols.
- Developed and implemented a comprehensive public education and injury prevention program.
- Maintained an overall net collection rate of 54.8% of billable collections.

Goals for 2007

- Continue to improve response times
- Increase the number of AEDs in the community from 126 to 200
- Increase the number of public education events by 10%.
- Improve cardiac arrest survival rates from 21.21% to 30%
- Improve reporting and data capture capabilities
- Develop and implement a customer satisfaction survey
- Develop and implement a bystander care program that would train citizen bystanders how to safely assist an accident victim prior to the arrival of emergency services
- Become accredited by the Commission on Accreditation of Ambulance Services

Options:

1. Accept the report on Emergency Medical Services and approve EMS Continuous Improvement Recommendations.
2. Do not accept the report on Emergency Medical Services and do not approve the EMS Continuous Improvement Recommendations.
3. Board Direction.

Recommendation:

Option # 1